APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,683	07/10/2003	David Alan Bailey	ROC920030218US1	2572

			EXAMINER
46296	7590	06/10/2005	STIGLIC, RYAN M

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ART UNIT	PAPER NUMBER
2112	

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)
		10/616,683	BAILEY ET AL.
Office Action Summary		Examiner	Art Unit	
		Ryan M. Stiglic	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-20 are pending and have been examined.

2.   Claims 1-20 are rejected.

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4.   Claims 16-20 are rejected under 35 U.S.C. 101 because Claim(s) 16-20 is/are not limited to tangible embodiments. In view of Applicant's disclosure, Specification page(s) 16, line(s) 1-2, the medium is not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g., floppy disks and CD-RW) and intangible embodiments (e.g., digital and analog communications links). As such, the claim(s) is/are not limited to statutory subject matter and is therefore non-statutory.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 1-17, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Applicant's Admitted Prior Art (herein after AAPA) in view of Mizukami (US

20020120708A1).

For claim 1:

AAPA teaches a bus numbering system comprising a first apparatus with a non-volatile memory

(Fig. 1-5, items 122, 132, 142, or 152; page 5, ll. 3-18). Each non-volatile memory contains the

serial number and type of the bus manager (Fig. 1-5, "CEC" 110; page 5, line 20 – page 6, line 2)

in order to validate the contents of each apparatus's non-volatile memory (page 8, ll. 8-18).

AAPA teaches a recovery procedure for the failure of an apparatus (page 9, line 1 - page 10, line

11). The outcome of the recovery procedure provides Tower C (Fig. 1-5; 140) with original

buses 7-9 renumbered to buses 12-14. Thus an inefficient failure recovery procedure is evident

and there exists a need for an efficient recovery procedure that provides Tower C with the ability

to rollback to the configuration of Tower C prior to the failure event.

Mizukami teaches a system for managing information in nodes in the event of a failure. The

invention of Mizukami relates to providing a copy of a node's configuration data in each of its

adjacent neighbors (abstract). Each node contains an information memory unit for storing

configuration data ([0018]) and a backup node information memory for storing an adjacent

node's configuration data ([0018-19]). The two information memory units are provided as a

single memory device ([0025;0063]). Upon the loss of the configuration data of a node (e.g. a

failure event) the data stored in the backup memory of an adjacent node is transferred to the

failed node ([0023;0083;0085;0095-0099]). Therefore upon failure of a particular node the

configuration data is loaded from the node's adjacent nodes providing an accurate recovery with

little intervention by a manager thus reducing the processing load of a manager ([0107]).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's

invention to implement the adjacent neighbor configuration data backup of Mizukami into the

bus numbering system of AAPA such that the possibility that configuration data (bus numbering

information) is lost can be reduced even if a failure occurs in a particular device.

For claims 2, 5, 8, 11, 13, 15 and 19:

The first apparatus of claim 1 wherein the bus numbering information comprises a beginning bus

number and a number of buses (AAPA; Fig. 1-5, items 122, 132, 142, or 152; page 5, ll. 3-18;

and in conjunction with the incorporation of Mizukami the non-volatile memory would be

provided with a backup copy of adjacent Towers' non-volatile memory and therefore their bus

numbering information).

For claims 3, 6 and 20:

The first apparatus of claim 1 wherein the non-volatile memory comprises at least one identifier

for determining if contents of the non-volatile memory are valid (AAPA; page 9, line 1 - page

10, line 11).

For claim 4:

A computer system comprising:

- a first physical enclosure (AAPA; Fig. 1-5; 120; page 5, ll. 3-18);

- a second physical enclosure coupled to the first physical enclosure (Fig. 1-5; 130; page 5, ll. 3-18), the second physical enclosure including a non-volatile memory that contains bus numbering information for buses contained in the first and second physical enclosures (AAPA; Fig. 1-5, items 122, 132, 142, or 152; page 5, ll. 3-18; and in conjunction with the incorporation of Mizukami the non-volatile memory would be provided with a backup copy of adjacent Towers' non-volatile memory and therefore their bus numbering information);

- and a bus number manager that detects a change in configuration of the computer system and that reads the bus numbering information from the non-volatile memory for the first and second physical enclosures to determine an appropriate bus number for at least one bus in the first and second physical enclosures (AAPA;Fig. 1-5, "CEC" 110; page 5, line 20 – page 6, line 2; page 9, line 1 - page 10, line 11; In view of Mizukami the CEC is provided with the ability to read backup configuration data/bus numbering information from adjacent Towers' non-volatile memory).

For claim 7:

A computer system comprising:

- a first physical enclosure comprising (AAPA; Fig. 2, 110):

    o at least one processor (AAPA; Fig. 2, 116);

    o a memory coupled to the at least one processor (AAPA; Fig. 2, 118);

- o a non-volatile memory coupled to the at least one processor, the non-volatile memory

  including a bus number mask that indicates bus numbers in use in the computer

  system (AAPA; Fig. 1-2; 112; page 5, line 20 – page 6, line 2); and

- o a hub coupled to the at least one processor (AAPA; Fig. 2, 114);

- a second physical enclosure comprising (AAPA; Fig. 2, 120):

  - o at least one bridge coupled to the hub in the first physical enclosure (AAPA; Fig. 2,

    126);

  - o at least one numbered bus coupled to the at least one bridge (AAPA; page 6, ll. 20-

    21);

  - o a non-volatile memory (AAPA; Fig. 2, 122) that contains:

    - ▪ bus numbering information for numbered buses in the second physical

      enclosure; and

    - ▪ bus numbering information for numbered buses in a third physical enclosure

      (AAPA; page 5, ll. 3-18; and in conjunction with the incorporation of

      Mizukami the non-volatile memory would be provided with a backup copy of

      adjacent Towers' non-volatile memory and therefore their bus numbering

      information);

- the third physical enclosure comprising (AAPA; Fig. 2, 130):

  - o at least one bridge coupled to the at least one bridge in the second physical enclosure

    (AAPA; 136);

  - o at least one numbered bus coupled to the at least one bridge in the third physical

    enclosure (AAPA; page 6, ll. 20-21);

o   a non-volatile memory (AAPA; Fig. 2, 132) that contains:

- bus numbering information for numbered buses in the third physical

    enclosure; and

- bus numbering information for numbered buses in the second physical

    enclosure (AAPA; page 5, ll. 3-18; and in conjunction with the incorporation

    of Mizukami the non-volatile memory would be provided with a backup copy

    of adjacent Towers' non-volatile memory and therefore their bus numbering

    information);

- a bus number manager residing in the memory of the first physical enclosure (Fig. 2, 119)

and executed by the at least one processor in the first physical enclosure (page 6, ll. 3-12), the

bus number manager detecting a change in configuration of the computer system and reading

the bus numbering information from the non-volatile memory in the second and third

physical enclosures to determine an appropriate bus number for at least one bus in the second

and third physical enclosures (AAPA;Fig. 1-5, "CEC" 110; page 5, line 20 – page 6, line 2;

page 9, line 1 - page 10, line 11; In view of Mizukami the CEC is provided with the ability

to read backup configuration data/bus numbering information from adjacent Towers' non-

volatile memory).

For claim 9:

A computer-implemented method for storing bus-numbering information in a non-volatile

memory, the method comprising the steps of:

- assigning unique bus numbers to buses in a first physical enclosure (AAPA; page 8, ll. 8-18);

- assigning unique bus numbers to buses in a second physical enclosure (AAPA; page 8, ll. 8-18);

- and storing the bus numbers for the buses in the first and second physical enclosures in the non-volatile memory (AAPA; Fig. 1-5, items 122, 132, 142, or 152; page 5, ll. 3-18; and in conjunction with the incorporation of Mizukami the non-volatile memory would be provided with a backup copy of adjacent Towers' non-volatile memory and therefore their bus numbering information).

For claim 10:

The method of claim 9 wherein the non-volatile memory resides in the first physical enclosure (In conjunction with the incorporation of Mizukami the non-volatile memory would be provided with a backup copy of adjacent Towers' non-volatile memory and therefore their bus numbering information. Furthermore both the first and second enclosures would thus contain non-volatile memories holding bus-numbering information for both itself and its neighbor enclosures).

For claim 12:

A computer-implemented method for numbering a plurality of buses in a computer system that includes a plurality of physical enclosures, the method comprising the steps of:

- storing in a non-volatile memory bus numbering information for at least one bus in a first physical enclosure (AAPA; page 5, ll. 3-19);

- storing in the non-volatile memory bus numbering information for at least one bus in a second physical enclosure (AAPA; page 5, ll. 3-19; and in conjunction with the incorporation of Mizukami the non-volatile memory would be provided with a backup copy of adjacent Towers' non-volatile memory and therefore their bus numbering information);

- detecting a change in the computer system configuration ; and reading the bus numbering information from the non-volatile memory for the first and second physical enclosures to determine an appropriate bus number for at least one bus in the first and second physical enclosures (AAPA; Fig. 1-5, "CEC" 110; page 5, line 20 – page 6, line 2; page 9, line 1 - page 10, line 11; In view of Mizukami the CEC is provided with the ability to read backup configuration data/bus numbering information from adjacent Towers' non-volatile memory.).

For claim 14:

A computer-implemented method for assigning and maintaining persistent numbers to a plurality of buses in a computer system that includes a plurality of physical enclosures, the method comprising the steps of:

- assigning unique bus numbers to buses in a first physical enclosure (AAPA; page 8, ll. 8-18);

- assigning unique bus numbers to buses in a second physical enclosure coupled to the first physical enclosure (AAPA; page 8, ll. 8-18);

- storing bus numbering information corresponding to the bus numbers for the buses in the first and second physical enclosures in a first non-volatile memory in the first physical enclosure (AAPA; page 5, ll. 3-19; and in conjunction with the incorporation of Mizukami the non-volatile memory would be provided with a backup copy of adjacent Towers' non-volatile memory and therefore their bus numbering information);

- storing bus numbering information corresponding to the bus numbers for the buses in the first and second physical enclosures in a second non-volatile memory in the second physical enclosure (AAPA; page 5, ll. 3-19; and in conjunction with the incorporation of Mizukami the non-volatile memory would be provided with a backup copy of adjacent Towers' non-volatile memory and therefore their bus numbering information);

- detecting a change in the computer system configuration;

- reading the bus numbering information from the first and second non-volatile memories to determine an appropriate bus number for the buses in the first physical enclosure; and

- reading the bus numbering information from the first and second non-volatile memories to determine an appropriate bus number for the buses in the second physical enclosure (AAPA; Fig. 1-5, "CEC" 110; page 5, line 20 – page 6, line 2; page 9, line 1 - page 10, line 11; In view of Mizukami the CEC is provided with the ability to read backup configuration data/bus numbering information from adjacent Towers' non-volatile memory.).

For claim 16:

A program product comprising (AAPA; page 6, ll. 3-12):

- a bus number manager that detects a change in configuration of a computer system that includes a plurality of physical enclosures, the bus number manager reading bus numbering information from a non-volatile memory in a first physical enclosure to determine an appropriate bus number for at least one bus in the first physical enclosure and at least one bus in a second physical enclosure (AAPA; Fig. 1-5, "Bus # Manager" 119; page 5, line 20 – page 6, line 2; page 9, line 1 - page 10, line 11; In view of Mizukami the CEC is provided with the ability to read backup configuration data/bus numbering information from adjacent Towers' non-volatile memory.); and

- computer readable signal bearing media bearing the bus number manager (AAPA; Fig. 2, "Memory" 118).

For claim 17:

The program product of claim 16 wherein the signal bearing media comprises recordable media (AAPA; Fig. 2, "Memory" 118; page 6, ll. 3-12).

For claim 18:

As stated above in the rejection made under 35 U.S.C. § 101 "transmission media" referring to communications links is an intangible embodiment and therefore not treated with respect to prior art.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. Cepulis and Adamson et al. disclose bus-numbering schemes related to PCI buses.

        Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ryan M. Stiglic whose telephone number is 571.272.3641. The

examiner can normally be reached on Monday - Friday (6:00-3:30).

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mark Rinehart can be reached on 571.272.3632. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

        Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RMS

PAUL R. MYERS
PRIMARY EXAMINER